

Patent Claims

1. Method of preparing liquid nitrate esters, characterized in that an alcohol solution and a nitrating acid are mixed in a microreactor.
- 5 2. Method according to Claim 1, characterized in that the internal channel diameter of the microreactor is at least 50 μm .
3. Method according to Claim 1, characterized in that the internal channel diameter of the microreactor is at least 100 μm .
- 10 4. Method according to Claim 1, characterized in that the internal channel diameter of the microreactor is not more than 3000 μm .
5. Method according to Claim 1, characterized in that the internal channel diameter of the microreactor is not more than 1000 μm .
- 15 6. Method according to one or more of Claims 1 to 5, characterized in that the flow of the liquids in the microreactor is laminar.
- 20 7. Method according to one or more of Claims 1 to 6, characterized in that the flow of the liquids in the microreactor has a Reynolds number of < 1000 .
8. Method according to one or more of Claims 1 to 7, characterized in that the microreactor contains microstructured passive mixing structures.
- 25 9. Method according to one or more of Claims 1 to 8, characterized in that the microreactor contains T- or Y-mixing structures.

10. Method according to one or more of Claims 1 to 9, characterized in that the microreactor contains glass or silicon as material.
- 5 11. Method according to one or more of Claims 1 to 10, characterized in that the microreactor contains metal, ceramic or enamel as material.
12. Method according to one or more of Claims 1 to 11, characterized in that the method is performed under isothermal conditions.
- 10 13. Method according to one or more of Claims 1 to 12, characterized in that the microreactor employs the split-and-recombine principle or the multilamination principle.
- 15 14. Method according to one or more of Claims 1 to 13, characterized in that a monohydric or polyhydric alcohol is used as alcohol.
15. Method according to one or more of Claims 1 to 14, characterized in that glycerol is used as alcohol.
- 20 16. Method according to one or more of Claims 1 to 15, characterized in that a mixture of concentrated sulfuric acid and concentrated nitric acid in a weight ratio of 0.8:1 to 1.2:1 is used as nitrating acid, wherein the sulfuric acid may in turn contain up to 10 wt% oleum.
- 25 17. Method according to one or more of Claims 1 to 16, characterized in that glycerol is used as alcohol and the molar ratio of HNO_3 to glycerol is 3:1 to 10:1.
- 30 18. Method according to one or more of Claims 1 to 17 for the preparation of a mono-, di- or polynitrate ester.

19. Method according to one or more of Claims 1 to 17 for the preparation of trinitroglycerol or glyceryl dinitrate ester.